

WHAT IS CLAIMED IS:

1. A variable-ratio transmission device for use in connection with a machine, the transmission device having a reduction ratio and comprising:
 - a first support assembled idle on a second hollow shaft with a slanted axis connected to a motor means;
 - a plurality of teeth or rollers on the first support;
 - a wheel with a first series of teeth or rollers configured to connect to the machine; and
 - means for axially sliding the first support, in order to change the reduction ratio of transmission device;
- 10 where rotation of the second hollow shaft causes the first support to perform an orbital movement, thereby causing the teeth or rollers on the first support to engage the teeth on the wheel.
2. The variable-ratio transmission device according to claim 1, further comprising a second series of teeth or rollers on the wheel that engage the plurality of teeth or rollers on a second support configured to connect to the machine.
- 15 3. The variable-ratio transmission device according to claim 1, further comprising means for axially sliding the second support to change the reduction ratio of transmission device.
4. The variable-ratio transmission device according to claim 1, where the wheel further comprises a second series of teeth or rollers that engages the plurality of teeth or rollers on a second support.
- 20 5. A variable-ratio transmission device for use in connection with a machine, the transmission device comprising:
 - a support shaft having an axis;
 - 25 a second hollow shaft rotatably assembled on the support shaft;
 - a first support assembled on the second hollow shaft, and configured to rotate around a slanted axis with respect to the axis of the support shaft;
 - a plurality of teeth or rollers arranged in a circular series on the first support;
 - a wheel assembled idle on the support shaft;
 - 30 a first series of teeth or rollers on the wheel adapted to be engaged by the plurality of teeth or rollers on the first support;
 - means to connect the wheel to the machine to which motion is transmitted; and

means for axially sliding the first support or the wheel with respect to the support shaft;

where rotation of the second hollow shaft causes the first support to perform an orbital movement, thereby causing the teeth or rollers on the first support to engage the teeth on the wheel.

5 6. The variable-ratio transmission device according to claim 5, where the wheel further comprises a second series of teeth or rollers that engages the plurality of teeth or rollers on a second support.

10 7. The variable-ratio transmission device according to claim 6, where the second support is assembled with its axis slanted on a third hollow shaft that is also assembled on the support shaft; and

 where the third hollow shaft is configured to connect to the machine.

15 8. The variable-ratio transmission device according to claim 7, where the third hollow shaft is connected through a free wheel assembled on a box that is configured to connect to a wheel hub of the machine.

9. The variable-ratio transmission device according to claim 8, further comprising a first ring hinged to the first support, and a second ring hinged to the second support;

 where the first ring and the second ring can rotate around a first axis with respect to the first support and the second support; and

20 where the first ring and the second ring can rotate around a second axis that is perpendicular with the first axis with respect to the first support and the second support.

10. The variable-ratio transmission device according to claim 9, where the second hollow shaft and the third hollow shaft are rotatably assembled on a grooved first hollow shaft; and

25 wherein the first hollow shaft is slidably assembled on the support shaft.

11. A machine comprising the variable-ratio transmission device according to claim 1.

12. A vehicle comprising the variable-ratio transmission device according to claim 1.

30 13. A motorcycle comprising the variable-ratio transmission device according to claim 1.

14. A bicycle comprising the variable-ratio transmission device according to claim 1.

15. A household appliance comprising the variable-ratio transmission device

according to claim 1.

16. A cutting machine comprising the variable-ratio transmission device according to
claim 1.

17. A vehicle comprising the variable-ratio transmission device according to claim 5.

5 18. A motorcycle comprising the variable-ratio transmission device according to
claim 5.

19. A bicycle comprising the variable-ratio transmission device according to claim 5.

20. A household appliance comprising the variable-ratio transmission device
according to claim 5.

10 21. A cutting machine comprising the variable-ratio transmission device according to
claim 5.